

Shad

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/507, 446 A
Source: PCT
Date Processed by STIC: 03/14/2006

ENTERED



PCT

RAW SEQUENCE LISTING

DATE: 03/14/2006

PATENT APPLICATION: US/10/507,446A

TIME: 11:05:00

Input Set : A:\sequence listing US 10507446.txt

Output Set: N:\CRF4\03142006\J507446A.raw

3 <110> APPLICANT: GOTO, Hidetsugu
 4 NAKANO, Shigeru
 6 <120> TITLE OF INVENTION: GENE PARTICIPATING IN ACETIC ACID TOLERANCE, ACETIC ACID
 BACTERIA
 7 BRED USING THE GENE, AND PROCESS FOR PRODUCING VINEGAR WITH THE
 8 USE OF THE ACETIC ACID BACTERIA
 10 <130> FILE REFERENCE: 4439-4024
 12 <140> CURRENT APPLICATION NUMBER: US/10/507,446A
 13 <141> CURRENT FILING DATE: 2004-09-13
 15 <150> PRIOR APPLICATION NUMBER: PCT/JP03/02946
 16 <151> PRIOR FILING DATE: 2003-03-12
 18 <160> NUMBER OF SEQ ID NOS: 10
 20 <170> SOFTWARE: PatentIn version 3.2
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 2016
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Gluconacetobacter entanii
 27 <400> SEQUENCE: 1
 28 gatatacaatg gcagcagcaa gatcgttgag gatctggcct ttgattcact ggccgcatg 60
 30 aattttgtca tggaaatcga ggacacgctc gacgtttccg tgccgcttga ccggctggct 120
 32 gatatccgca ccattgatga tctggctgcc tgtatcgtct ctctcaagca ggcatcctga 180
 34 tacaccatgt cgattttctc gaaatatgaa ggccttgctg ccgccctgtc ggcggtaacg 240
 36 gccgatgggt ggcgcaaccc gttcaacgtc gtgatcgaaa agcccatctt ctccacggctc 300
 38 gggctgatcg aaggcgcgca gacgcttctg ttcggcacca acaactatct tgggctgagc 360
 40 cagtccccgg ccgcgatcga agcggcggtg gaagccgccg gggcttatgg tgtcggcacg 420
 42 accggatcgc gcatcgccaa tggcacgcag ggtctgcacc gccagttgga agagcggctg 480
 44 tgcaccttct tccgtcgtcg gcaactgcag gtgttttcca ccggttacca ggccaatctg 540
 46 ggcacgattt ccgcactggc gggcaaggac gattatctgc tgcttgatgc ggacagccat 600
 48 gccagcatct atgatggcag ccgccttggc catgcgcagg tcatccgctt ccgtcacaac 660
 50 gacgccgatg acctgcataa acgcctgcgc cgccttgatg gtacgcccgg agcgaaactg 720
 52 gtcgtgggtc aaggcatcta ttccatgatg ggcgacgtcg ttcccatggc ggaattcgcg 780
 54 gccgtcaagc gggaaaaccg tgcattggctg ctggcggtat aagcacattc cgttggtgta 840
 56 atgggcgaac atggccgtgg cgtggcgga tccgacggcg tggaaagatga tgtcgatttt 900
 58 gtcgtcggca cctttttcaa aagccttggc acggttggtg gctactgtgt ttccaacccat 960
 60 gccgggctgg acctgatccg gctgtgttcg cgtccgtaca tgttcaccgc atccctgccg 1020
 62 ccggaagtca tcgccgcgac catggccgcg ctgactgaac tggaaaaccg gccggaactg 1080
 64 cgcgtgcggt tgatggacaa tgcacgcagg cttcatgacg ggctgcaggc ggccggcctg 1140
 66 cgcaccggcc cgcaggccag tctgtcgtg tccgtcattc tggatgatgt ggcggttgcc 1200
 68 gtggcggttc ggaaccggct gctggacctt ggggtttacg tcaacctcag cctgcccgtc 1260
 70 gcaacgcccg accagcatcc cctgctgcgg accctcgta tggcgaccca tacgcggag 1320
 72 cagatagacc gggccgtgga aatcttcgcc gttgtagcgg gcgagatggg tatcaaccgc 1380
 74 gccgcctgaa aaaaacctgc tgcgtaatt tccacagcag atacggcagg cagaccagcg 1440
 76 gatgccgttc cgaaaacggc cccagcggca gttcaatgcc ggaatgccgc ctgatcttcc 1500
 78 atgcgatata gcgcgcgcca ccttcaaacc tgaaggcccc cttgaacagg cggctgacat 1560

RAW SEQUENCE LISTING

DATE: 03/14/2006

PATENT APPLICATION: US/10/507,446A

TIME: 11:05:00

Input Set : A:\sequence listing US 10507446.txt

Output Set: N:\CRF4\03142006\J507446A.raw

```

80 tcagcacgcg cccagccga ccacgcagcc accagccttc gtacatcttc cggcgcagtt 1620
82 caggtgtcag ctgggggggtt agttgatcgc cctcagaccg gaacggcagg ccatcggcgc 1680
84 gccatacatc cggcagcagg cgcctgtacc gtgcttcctg cccctgtagc aggctacgcg 1740
86 gcctgcggcc gttctccaca cgcagttccg caccgtaagt atgggcgaac agggccagcc 1800
88 agtagtcatc ggccgtgccc tgtgccggac ccagggcggc agcccagcgc cccgcctgcc 1860
90 ccaccgcgcg gataatgcag gccaggatgg catcggccgc gtccggttcc ctgaccata 1920
92 caagccgcac aggttggcag aagcgtgccc agaccgtggt atccaacgtg gcgcgtcccg 1980
94 tcatgcggcg gaactgcgct atggacagga tggcca 2016
97 <210> SEQ ID NO: 2
98 <211> LENGTH: 400
99 <212> TYPE: PRT
100 <213> ORGANISM: Gluconacetobacter entanii
102 <400> SEQUENCE: 2
104 Met Ser Ile Phe Ser Lys Tyr Glu Gly Leu Ala Ser Ala Leu Ser Ala
105 1 5 10 15
108 Val Thr Ala Asp Gly Gly Arg Asn Pro Phe Asn Val Val Ile Glu Lys
109 20 25 30
112 Pro Ile Ser Ser Thr Val Gly Leu Ile Glu Gly Arg Glu Thr Leu Leu
113 35 40 45
116 Phe Gly Thr Asn Asn Tyr Leu Gly Leu Ser Gln Ser Pro Ala Ala Ile
117 50 55 60
120 Glu Ala Ala Val Glu Ala Ala Arg Ala Tyr Gly Val Gly Thr Thr Gly
121 65 70 75 80
124 Ser Arg Ile Ala Asn Gly Thr Gln Gly Leu His Arg Gln Leu Glu Glu
125 85 90 95
128 Arg Leu Cys Thr Phe Phe Arg Arg Arg His Cys Met Val Phe Ser Thr
129 100 105 110
132 Gly Tyr Gln Ala Asn Leu Gly Thr Ile Ser Ala Leu Ala Gly Lys Asp
133 115 120 125
136 Asp Tyr Leu Leu Leu Asp Ala Asp Ser His Ala Ser Ile Tyr Asp Gly
137 130 135 140
140 Ser Arg Leu Gly His Ala Gln Val Ile Arg Phe Arg His Asn Asp Ala
141 145 150 155 160
144 Asp Asp Leu His Lys Arg Leu Arg Arg Leu Asp Gly Thr Pro Gly Ala
145 165 170 175
148 Lys Leu Val Val Val Glu Gly Ile Tyr Ser Met Met Gly Asp Val Val
149 180 185 190
152 Pro Met Ala Glu Phe Ala Ala Val Lys Arg Glu Thr Gly Ala Trp Leu
153 195 200 205
156 Leu Ala Asp Glu Ala His Ser Val Gly Val Met Gly Glu His Gly Arg
157 210 215 220
160 Gly Val Ala Glu Ser Asp Gly Val Glu Asp Asp Val Asp Phe Val Val
161 225 230 235 240
164 Gly Thr Phe Ser Lys Ser Leu Gly Thr Val Gly Gly Tyr Cys Val Ser
165 245 250 255
168 Asn His Ala Gly Leu Asp Leu Ile Arg Leu Cys Ser Arg Pro Tyr Met
169 260 265 270
172 Phe Thr Ala Ser Leu Pro Pro Glu Val Ile Ala Ala Thr Met Ala Ala
173 275 280 285

```

RAW SEQUENCE LISTING

DATE: 03/14/2006

PATENT APPLICATION: US/10/507,446A

TIME: 11:05:00

Input Set : A:\sequence listing US 10507446.txt

Output Set: N:\CRF4\03142006\J507446A.raw

```

176 Leu Thr Glu Leu Glu Asn Arg Pro Glu Leu Arg Val Arg Leu Met Asp
177      290                      295                      300
180 Asn Ala Arg Arg Leu His Asp Gly Leu Gln Ala Ala Gly Leu Arg Thr
181 305                      310                      315                      320
184 Gly Pro Gln Ala Ser Pro Val Val Ser Val Ile Leu Asp Asp Val Ala
185                      325                      330                      335
188 Val Ala Val Ala Phe Trp Asn Arg Leu Leu Asp Leu Gly Val Tyr Val
189                      340                      345                      350
192 Asn Leu Ser Leu Pro Pro Ala Thr Pro Asp Gln His Pro Leu Leu Arg
193                      355                      360                      365
196 Thr Ser Val Met Ala Thr His Thr Pro Glu Gln Ile Asp Arg Ala Val
197      370                      375                      380
200 Glu Ile Phe Ala Val Val Ala Gly Glu Met Gly Ile Asn Arg Ala Ala
201 385                      390                      395                      400
204 <210> SEQ ID NO: 3
205 <211> LENGTH: 1360
206 <212> TYPE: DNA
207 <213> ORGANISM: Acetobacter aceti
209 <400> SEQUENCE: 3
210 gaagacagct tggatgtatc tatcccgctc gacaaactgg ctgatatccg aacgattaat      60
212 gaccttgccg cttgcattgt tgctctgaaa aacaaagggg gaggcgtgga tgacatcact      120
214 attttccaaa tttgaaggta cggcaggcgc gctgggttcc gttgtggccg taggcggtcg      180
216 caaccctttt gctgttggtta ttgaaaaacc tgtctcttca actgttgtaa ttattgaagg      240
218 tcgggaaacg cttctttttg gcaccaataa ctatttgggg cttagtcaat ccaaaaatgc      300
220 cattcaagca gccagcagg ctgccgcggc atgtggcgta ggcacaacgg gctcacgcat      360
222 tgcaaatggc acacaatccc tgaccgcaca gcttgaaaaa gatattgccg cgttttttgg      420
224 tcggcgtgat gccatggttt tttccacggg gtatcaggca aacctcggca ttatttccac      480
226 gctggcaggt aaggatgacc acctgtttct ggatgctgat agccacgcca gtatctatga      540
228 tcgcagccgc ctgagtgcag cagaagttaa tcgcttcgcg cataatgatc cagacaacct      600
230 ttataaaacc cttaaaacgca tggatggcac gccaggcgcc aaattgattg tggttgaagg      660
232 catttattcc atgacgggta atgttgcccc gattgcagaa tttgttgctg ttaaaaaaga      720
234 aacaggcgct tacctgctgg tagatgaagc ccattctttt ggctgtgttg gtcaaaatgg      780
236 gcgtgggtgcc gctgaggctg atggcggtga agctgatgtg gactttgttg tcggcacatt      840
238 ttccaaaagc ttgggcacag ttggcggtta ctgcgtatct gaccatcctg agctggagtt      900
240 tgtgcgctta aactgccggc cctatatgtt tacggcatcg ctaccgccgg aagttattgc      960
242 tgccacaacg gctgccttga aagatatgca ggcacatcct gaattgcgta agcagcttat     1020
244 ggcaaacgcg cagcaactac atgcagggtt tgtagatatt gggctaaatg ccagcaaaaca     1080
246 cgcaacccca gttattgccg ttacattgga aacagctgaa gaagctattc ccatgtggaa     1140
248 caggcttttg gaacttggtg tttatgtaaa tctcagcctt cctccggcta caccagattc     1200
250 gcggccgttg ctccgttggt ccgtaatggc caccatacgc cccgaacaaa ttgcgcaggc     1260
252 tattgccata ttcaggcagg ctgcggcaga agtaggcgta accatcacac cctccgctgc     1320
254 ttaaaaaaaaa gctatttgcg cttgaatgcc ccttgcctgc     1360
257 <210> SEQ ID NO: 4
258 <211> LENGTH: 404
259 <212> TYPE: PRT
260 <213> ORGANISM: Acetobacter aceti
262 <400> SEQUENCE: 4
264 Met Thr Ser Leu Phe Ser Lys Phe Glu Gly Thr Ala Gly Ala Leu Gly
265 1                      5                      10                      15

```

RAW SEQUENCE LISTING

DATE: 03/14/2006

PATENT APPLICATION: US/10/507,446A

TIME: 11:05:00

Input Set : A:\sequence listing US 10507446.txt

Output Set: N:\CRF4\03142006\J507446A.raw

```

268 Ser Val Val Ala Val Gly Gly Arg Asn Pro Phe Ala Val Val Ile Glu
269          20          25          30
272 Lys Pro Val Ser Ser Thr Val Gly Ile Ile Glu Gly Arg Glu Thr Leu
273          35          40          45
276 Leu Phe Gly Thr Asn Asn Tyr Leu Gly Leu Ser Gln Ser Lys Asn Ala
277          50          55          60
280 Ile Gln Ala Ala Gln Gln Ala Ala Ala Ala Cys Gly Val Gly Thr Thr
281 65          70          75          80
284 Gly Ser Arg Ile Ala Asn Gly Thr Gln Ser Leu His Arg Gln Leu Glu
285          85          90          95
288 Lys Asp Ile Ala Ala Phe Phe Gly Arg Arg Asp Ala Met Val Phe Ser
289          100          105          110
292 Thr Gly Tyr Gln Ala Asn Leu Gly Ile Ile Ser Thr Leu Ala Gly Lys
293          115          120          125
296 Asp Asp His Leu Phe Leu Asp Ala Asp Ser His Ala Ser Ile Tyr Asp
297          130          135          140
300 Gly Ser Arg Leu Ser Ala Ala Glu Val Ile Arg Phe Arg His Asn Asp
301 145          150          155          160
304 Pro Asp Asn Leu Tyr Lys Arg Leu Lys Arg Met Asp Gly Thr Pro Gly
305          165          170          175
308 Ala Lys Leu Ile Val Val Glu Gly Ile Tyr Ser Met Thr Gly Asn Val
309          180          185          190
312 Ala Pro Ile Ala Glu Phe Val Ala Val Lys Lys Glu Thr Gly Ala Tyr
313          195          200          205
316 Leu Leu Val Asp Glu Ala His Ser Phe Gly Val Leu Gly Gln Asn Gly
317          210          215          220
320 Arg Gly Ala Ala Glu Ala Asp Gly Val Glu Ala Asp Val Asp Phe Val
321 225          230          235          240
324 Val Gly Thr Phe Ser Lys Ser Leu Gly Thr Val Gly Gly Tyr Cys Val
325          245          250          255
328 Ser Asp His Pro Glu Leu Glu Phe Val Arg Leu Asn Cys Arg Pro Tyr
329          260          265          270
332 Met Phe Thr Ala Ser Leu Pro Pro Glu Val Ile Ala Ala Thr Thr Ala
333          275          280          285
336 Ala Leu Lys Asp Met Gln Ala His Pro Glu Leu Arg Lys Gln Leu Met
337          290          295          300
340 Ala Asn Ala Gln Gln Leu His Ala Gly Phe Val Asp Ile Gly Leu Asn
341 305          310          315          320
344 Ala Ser Lys His Ala Thr Pro Val Ile Ala Val Thr Leu Glu Thr Ala
345          325          330          335
348 Glu Glu Ala Ile Pro Met Trp Asn Arg Leu Leu Glu Leu Gly Val Tyr
349          340          345          350
352 Val Asn Leu Ser Leu Pro Pro Ala Thr Pro Asp Ser Arg Pro Leu Leu
353          355          360          365
356 Arg Cys Ser Val Met Ala Thr His Thr Pro Glu Gln Ile Ala Gln Ala
357          370          375          380
360 Ile Ala Ile Phe Arg Gln Ala Ala Ala Glu Val Gly Val Thr Ile Thr
361 385          390          395          400
364 Pro Ser Ala Ala

```

RAW SEQUENCE LISTING

DATE: 03/14/2006

PATENT APPLICATION: US/10/507,446A

TIME: 11:05:01

Input Set : A:\sequence listing US 10507446.txt

Output Set: N:\CRF4\03142006\J507446A.raw

```

368 <210> SEQ ID NO: 5
369 <211> LENGTH: 30
370 <212> TYPE: DNA
371 <213> ORGANISM: Artificial Sequence
374 <220> FEATURE:
375 <221> NAME/KEY: misc_feature
376 <222> LOCATION: (1)..(30)
377 <223> OTHER INFORMATION: synthetic primer
379 <400> SEQUENCE: 5
380 ctggctgcct gtatcgtctc tctcaagcag 30
383 <210> SEQ ID NO: 6
384 <211> LENGTH: 30
385 <212> TYPE: DNA
386 <213> ORGANISM: Artificial Sequence
389 <220> FEATURE:
390 <221> NAME/KEY: misc_feature
391 <222> LOCATION: (1)..(30)
392 <223> OTHER INFORMATION: synthetic primer
394 <400> SEQUENCE: 5
395 acggctgcag ctggctctgcc tgccgtatct 30
398 <210> SEQ ID NO: 7
399 <211> LENGTH: 30
400 <212> TYPE: DNA
401 <213> ORGANISM: Artificial Sequence
404 <220> FEATURE:
405 <221> NAME/KEY: misc_feature
406 <222> LOCATION: (1)..(30)
407 <223> OTHER INFORMATION: synthetic primer
409 <400> SEQUENCE: 7
410 ggcaaacctc ggcattatct ccacgctggc 30
413 <210> SEQ ID NO: 8
414 <211> LENGTH: 29
415 <212> TYPE: DNA
416 <213> ORGANISM: Artificial Sequence
419 <220> FEATURE:
420 <221> NAME/KEY: misc_feature
421 <222> LOCATION: (1)..(29)
422 <223> OTHER INFORMATION: synthetic primer
424 <400> SEQUENCE: 8
425 gcgaatctgg tgtagccgga ggaaggctg 29
428 <210> SEQ ID NO: 9
429 <211> LENGTH: 30
430 <212> TYPE: DNA
431 <213> ORGANISM: Artificial Sequence
434 <220> FEATURE:
435 <221> NAME/KEY: misc_feature
436 <222> LOCATION: (1)..(30)
437 <223> OTHER INFORMATION: synthetic primer
439 <400> SEQUENCE: 9

```

VERIFICATION SUMMARY

DATE: 03/14/2006

PATENT APPLICATION: US/10/507,446A

TIME: 11:05:02

Input Set : A:\sequence listing US 10507446.txt

Output Set: N:\CRF4\03142006\J507446A.raw